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CONTENTS

I.	ENTRIES	1-44
II.	AUTHOR INDEX	A-1-A-6
III.	SUBJECT INDEX	S-1-S-3
IV.	TAXONOMIC INDEX	T-1-T-2
V.	SERIAL INDEX	SI-1-SI-2

I. ENTRIES

1. Ahmad Najmi & Krishna Swarup (1988)

Dept. of Zoology, University of Gorakhpur,
Gorakhpur-273009, India.

Seasonal changes in the functional morphology of ultimobranchial body in relation to the reproductive cycle and changes in serum calcium level of a freshwater female catfish, Mystus vittatus (Bloch).

Proc. Nat. Acad. Sci. India,
58 (B) III: 359-363.

The present paper deals with the seasonal changes in the structure & behaviour of the ultimobranchial body in relation to ovarian cycle & corresponding changes in the serum calcium level of Mystus vittatus (Bloch).

21 ref.

2. ¹Azad, I.S. & ²K.S. Udupa (1989)

1. ICAR Research complex for North-Eastern Hill Region, Manipur Centre, Imphal, Manipur-795001.

2. College of Fisheries,
Mangalore-575002, India.

Length-weight relationship of the Indian mackerel off Mangalore.

Indian J. Anim. Sci., 59(1): 202-206.

Length-weight relationship of the Indian mackerel was established separately for males & females respectively. Homogeneity of the relations tested with analysis of covariance technique showed significant difference between the two males & females showed allometric growth pattern. The relative condition factor showed minimum values for females in January & for males in March.

13 ref.

3. Babu, K. Surendra (1986)

Marine Research Wing, Dept. of Zoology,
S.V. University P.G. Centre,
Kavali-524202, India.

Identification of penaeid postlarvae entering
the uppuleri estuary, Andhra Pradesh.

Bull. Dept. Mar. Sci. Univ. Cochin,
14: 99-111.

Both morphological & morphometric characteristics have been taken as criteria for identifying the postlarval stages of the genus Penaeus & Metapenaeus. The study brings into light certain characteristics of taxonomic importance. An identification key is given for quick reference. The specific identity of the postlarvae was confirmed by rearing them in lab to the juvenile stage.

15 ref.

4. Babu, P.R.A., G.R. Reddy, G.R.V. Babu & C.S. Chetty (1988)

Dept. of Zoology, Sri Venkateswara
University,
Tirupati-517502, India.

Glycolytic oxidation in freshwater fish,
Sarotherodon mossambicus during benthocarb
exposure.

Curr. Sci., 57(11): 591-594.

A decrease in total carbohydrate & pyruvate levels & an increase in lactate levels were observed. The blood glucose level was not altered appreciably in fish exposed to sublethal concentration for 1 day but a significant decrease in blood glucose was seen in fish exposed for 2 & 10 days.

26 ref.

5. Babu, T. Ramesh, P. Surendranath, K. Surendra & K.V. Ramana Rao (1986)

Dept. of Marine Zoology, S.V. University
P.G. Centre,
Kavali-524202, A.P. India.

Toxicity of technical and commercial grade fenvalerate to penaeid prawns, Penaeus indicus and Metapenaeus monoceros.

Bull. Dept. Mar. Sci. Univ. Cochin,
14: 83-87.

The toxicity of technical & commercial grade Fenvalerate to P. indicus & M. monoceros was determined by probit theory. Technical grade Fenvalerate was found to be less toxic than commercial grade. P. indicus was more sensitive to both technical & commercial grades when compared to M. monoceros. The rate of oxygen consumption showed an initial acceleration followed by inhibition in both the species.

12 ref.

6. Bais, V.S. & H.N. Bhargava (1988)

Zoological Laboratories, Dept. of Zoology,
Dr. H.S. Gour Vishwavidyalaya
Sagar-470003, India.

Studies on the corpora-atretica, the post ovulatory follicles and the spawning periodicity in the Indian freshwater catfish, Mystus vittatus (Bloch).

Proc. Nat. Acad. Sci. India,
58(B)III: 379-386

The formation of corpora-atretica and their ultimate absorption in the stroma of ovary has been described into four different stages.

43 ref.

7. Basavaraja, N., G.K. Srikanth, M.C. Nandeesha & T.J. Varghese (1989)

University of Agricultural Sciences,
College of Fisheries,
Mangalore-575002, India.

Impact of testosterone-incorporated diets
on growth, body composition and organo-
leptic quality of the common carp
Cyprinus carpio (Linnoeus).
J. Aqua. Trop, 4(1): 21-28.

Three groups of common carp fingerlings were fed diets incorporated with a natural androgen, testosterone, at concentrations of 2.5, 5.0, 10.0 mg/kg for 160 days keeping a fourth groups on a hormone-free diet as control. The different levels of the steroid did not change the gonadosomatic, hepatosomatic & viscerosomatic index. Testosterone administration for 126 days did not alter the organoleptic quality of the flesh of the experimental fish.

17 ref.

8. Bhattacharjee, P.C. & M. Dasgupta (1989)

Animal Ecology Laboratory, Dept. of
Zoology, Gauhati University,
Guwahati-781014, India.

Fecundity of the freshwater prawn Macrobrachium dayanum (Handerson) from ponds and swamps of Kamrup, Assam, India.
Environ. & Ecol., 7(3): 724-726.

Fecundity of Macrobrachium dayhanum varied from 37 to 111 in body length range of 45 to 68 mm. Fecundity was found to have linear relationship with body length body weight & ovary weight. The fecundity was more closely related to be higher than number of eggs per centimeter body length. Relative fecundity ranged from 31.10 to 76.50.

2 ref.

9. Bhowmik, M.L. (1985)

Central Inland Capture Fisheries Research
Institute,

Barrackpore-743101, India.

Studies on the plankton populations in two
oxbow lakes of Gandak basin in Muzaffarpur,
Bihar.

J.Inland Fish.Soc.India,

17(1&2) : 29-34

The present communication gives a comparative
account of the variations in the plankton populations
of weed choked Manika & sewage-fed Sikanderpur mauns
in Muzaffarpur, Bihar. Both the mauns show swampy
conditions & tendency towards eutrofication.

8 ref.

10. Bhowmik, M.L. & S.D. Tripathi (1985)

Central Inland Capture Fisheries Research
Institute,

Barrackpore-743101, West Bengal, India.

On the plankton and fish growth of ponds
under semi-intensive fish culture in acid
soils of Jalpaiguri, West Bengal.

J.Inland Fish.Soc.India, 17(1&2):39-47.

Qualitative & quantitative fluctuations of
plankton in semi-intensive carp culture in acid soils
of Jalpaiguri have been discussed, making an attempt
to correlate them with the fish production. Among
Zooplankton, the dominance of a single species was
observed when no such trend could be found among
phytoplankters during monsoon to winter months.
Microcystis sp. affected the fish growth especially
of silver carp.

19 ref.

11. ¹Chakraborti, N.M. & ²A. Asthana (1989)

1. Bangalore Research Centre of CIFA
(ICAR), 170, 8th Cross, Mulleswaram,
Bangalore-560003, India.

2. DAV College,
Kanpur-208002, India.

Plankton succession and ecology of
a sewage treated pond in West Bengal.
Environ. & Ecol., 7(3): 549-554.

A round the year limnoplanktonic study
of a freshwater sewage fed pond demonstrated that
phytoplankton were predominant over zooplankton. The
correlation coefficients between total phytoplankton
& several physico-chemical conditions such as BOD
NH₄, PO₄, primary productivity was significant.

11 ref.

12. Chetty, Sandhya Rani & S.M. Agarwal (1987)

Dept. of Biosciences, Ravishankar Uni-
versity,
Raipur-492010, India.

Studies on some aspects of carbohydrate
metabolism during the embryonic deve-
lopment of Cyprinus carpio.

Ad.Bios., 6(2): 139-144.

It is summarised on the basis of the
present study that fertilization & gastrulation, are
differently programmed, the former with low respi-
ratory intensity, much less, protein synthesis &
with glycolysis as the source of energy requirement
whereas the latter with high respiratory intensity,
high rate of protein synthesis high SDH activity &
respiration as the source for requirement of energy.

13 ref.

13. Chondar, S.L. (1985)

CIFE, Calcutta

Systematic account of carp hybrid Nadina.II

Labeo rohita Catla catla.

J.Inland Fish.Soc.India, 17(1 & 2): 66-70

13 ref.

14. Chowhan, J.S. N.K. Gupta & S. Khera (1988)

Dept. of Zoology, Punjab University,
Chandigarh.

On Acanthosentis putetorae sp. Nov. and
A. seenghaee sp.Nov. (Acanthocephala:
quadrigyridae) from freshwater fishes of
northern India.

Res. Bull. Panjab Univ., 39(3-4): 197-206.

9 ref.

15. ¹Das,Nirupama & ²Radha C. Das

1. Dept. of Zoology, B.J.B. College,
Bhubaneswar-751014, India.

2. Reproductive Physiology Laboratory,
CIFA, Kausalyagang, Bhubneswar-751002,
India.

Induction of ovulation in Labeo bata (Hamilton) by luteinizing hormone-releasing hormone analogue (LH-RHa).

J. Aqua. Trop., 4(1): 51-54

Successful spawning was induced in Labeo bata by administering a synthetic analogue of LH-RH at a dose of 10 ug/kg of body weight. Spawning occurred in mature females about 48 hrs. after treatment with LH-RH analogue & about 14 hrs. after the first injection with carp pituitary extract.

19 ref.

16. Das, P.K. M.K. & S.K. Konar (1989)

Fisheries Laboratory, Dept. of Zoology,
Kalyani University,
Kalyani-741235, India.

Influence of mixture of petroleum re-
finery effluent and nonionie detergent
on aquatic ecosystem.

Environ. & Ecol., 7(3): 598-604.

Sublethal levels of petroleum refinery
effluent (PRE) & non-ionie in mixture significanttly
reduced the dissolved oxygen, free Co_2 & hardness
of water whereas the phosphate level of water was
increased significantly.

19 ref.

17. Das, R.K. B.N. Saigal & V.V. Sugunan (1985)

Central Inland Capture Fisheries Research
Institute,

Barrackpore-743101, India.

Response of some bacterial populations
in jute-retted pond under fish culture.

J. Inland Fish. Soc. India, 17(1&2):1-6

The study clearly indicate that retting
of jute plants in any water body enriches it by
supplying both organic inorganic nutrients in su-
fficient quantities by various bio-chemical pro-
cesses. This triggers an abrupt rise in microbial
population. This again, initiates a productive chain
in the primary & secondary levels. Consequently in
the tertiary level Fish culture is possible.

11 ref.

18. Devadoss, P. (1988)

Madras Research Centre of CMFRI,
C-in-C Road, Egnore,
Madras-600105.

Observation on the breeding and development
of some sharks.

J. Mar. Biol. Ass. India, 30(1&2):121-132.

Size at maturity, developmental stages and
breeding seasons of five sharks from the Partonovo
Coast are described.

15 ref.

19. Gaikwad, Senhalata A. (1989)

Dept. of Biological Sciences,
Ramnarain Ruia College, Matunga,
Bombay-400019, India.

Acute toxicity of mercury, copper and
selenium to the fish Eetroplus maculatus
Environ. & Ecol., 7(3): 694-696.

Acute toxicity studies were conducted with
Eetroplus maculatus & three different heavy metal
salts, namely, mercury chloride, copper sulfate &
selenium oxide. Mercury was highly toxic to Eetroplus
maculatus at acute conditions. Exposed fish showed
various symptoms such as lethargic swimming movement
& increased ventilation rate. Selenium treated fish
had pinkish belly at the time of death. These heavy
metals when compared showed that mercury was more
toxic than other two heavy metals. Mixture of all
these three metals was observed to be more toxic
than the toxicity of the individual metal.

6 ref.

20. Garg, V.K. S.K. Garg & S.K. Tyagi (1989)

Dept. of Zoology, DAV (PG) College,
Muzaffarnagar-251001, India.
Hematological parameters in fish Channa
punctatus under the stress of manganese.
Environ. & Ecol., 7(3): 752-755.

Hematological observations were made in a teleost fish Channa punctatus after the exposure to manganese for 96 hrs. (LC_{50} 3.01g/liter)² & 30 days (sublethal concentration, 0.57 g/liter). Number of RBC decreased while WBC increased in the treated fish. Hb & PCV decreased significantly with lapse of time. MCV, MCHC, MCH values were also altered in the treated fish. Protein & Urea contents were more reduced due to acute exposure; in chronic stage urea level was enhanced. GOT & GPT activity was also enhanced with lapse of exposure time.

21 ref.

21. Ghosh, Amitabha (1985)

Central Inland Capture Fisheries
Research Institute,
Barrackpore-743101, India
Observation on the digestive enzymes of
the Indian feather back Notopterus chitala
(Ham.) in relation to its food habits.
J. Inland Fish Soc. India, 17(1&2):25-28.

Qualitative estimation of digestive enzymes indicated absence of amylase in the stomach extract of Notopterus chitala. Rectal caecum was found

to be devoid of any of the digestive enzymes studied. pH of the stomach exhibited an acidic condition. Only anterior intestinal extracts demonstrated the presence of all digestive enzymes studied.

17 ref.

22. Ghosh, A. & J.P. George (1989)

Inland Fisheries Training Centre,
Barrackpore-743101, West Bengal, India.
Studies on the abiotic factors and zooplankton in a polluted urban reservoir: Hussain Sagar, Hyderabad: impact on water quality and embryonic development of fishes.
Indian J. Environ. Hlth., 31(1): 49-59.

Studies on various environmental parameters & zooplankton were conducted during June, 1980 to May 1981 in Hussain Sagar, Hyderabad, which receives considerable industrial effluents & domestic sewage. The decomposition process of autochthonous & allochthonous materials exceeds the photosynthetic activity & oxygen production in the water. Due to the enrichments of nutrients by the decomposition of organic matters, addition of domestic sewage, detergents & other pollutants the reservoir is infested with Eichornia sp. which resulted in the dwindling of fish fauna & fish food organisms.

25 ref.

23. Ghosh, Apurba, S.V. Mukhopadhyay, P.K. Chakrabarti & G.N. Chattopadhyay (1985)

Central Inland Capture Fisheries Research
Institute,
Barrackpore-743101, West Bengal, India.

Culture of Macrobrachium rosenbergii (de.Man)
in a sewage-fed pond.

J. Inland Fish. Soc. India, 17(1&2):53-61

During the trial, an attempt has been made to record the food habit, & growth pattern among males & females in relation to a few environmental parameters. The technological details alongwith the economics of the culture system have also been presented to open a new vista for adoption of the M. rosenbergii culture of 499.8 kg/ha in 8 months.

18 ref.

24. Ghosh, Kaveri, Swapna Banerjee & V. Banerjee (1989)

Hematology Laboratory, P.G. Dept. of Zoology
Patna University,
Patna-800005, India.

Hemopoietic tissues in an air-breathing fish
Heteropneustes fossilis.

Environ. & Ecol., 7(3): 775-776.

Among hemopoietic tissues in Heteropneustes fossilis, spleen & head kidney were examined by squash method. Several stages of erythropoiesis were observed which comprised hemoblasts, erythrocytes, & mature erythrocytes. Also alterations in the shape & size of mature erythrocytes in the nucleus were found.

7 ref.

25. Ghosh, P.B. & A. Choudhury (1989)

Dept. of Marine Science,
35, B.T. Road,
Calcutta-700019, India.

The nutrient status of the sediments of
Hooghly estuary.

Mahasagar, 22(1): 37-41.

The organic carbon varied from 1.53 to 5.41 mg C/g, total nitrogen from 0.008 to 0.058%, available nitrogen from 9 to 32% of total nitrogen and available phosphorus from 0.5 to 9.1% of total phosphorus. The nutrient status has been worked out in relation to the texture of the sediments of the estuary.

17 ref.

26. Gopal Krishna, M.D. Ram, M. Anand & P.K. Ray (1989)

Industrial Toxicology Research Centre,
Post Box No. 80,
Lucknow-226001, India.

Toxicity and fate of lindane in fresh
water fish Channa functatus.

Environ. & Ecol., 7(3): 571-576.

Bioassay tests were conducted with the pesticide lindane on the fish Channa punctatus. The LC₅₀ values for 24-96 hrs ranged from 0.0258 ppm. Rate of oxygen consumption was enhanced with ascending exposure time while at 4 days fish became lethargic, occasionally gulping air. Bioaccumulation of lindane showed the sequence: liver - brain - muscle - gills.

23 ref.

27. Gopalakrishnan, P., V. Krishna Raju & Surendra R. Thaker (1989)

Tata Chemicals Ltd.,
Mithapur-361345.

Some observations on the growth and cyst production characteristics of the brine shrimp Artemia sp. (Gujarat strain) in pond culture and its potential for import substitution.

Fish. Technol., 26(2): 100-103.

Experimental culture of the brine shrimp Artemia sp. (Gujarat strain) & production of cyst is discussed. The qualitative & quantitative aspects of the cyst & its economic potential for import substitution are highlighted.

13 ref.

28. Gupta, Sushma & S. Khera (1988)

Dept. of Zoology,
Punjab University,
Chandigarh, India.

One new and one already known species of the genus Myxobolus from freshwater fishes of India.

Res. Bull. Punjab Univ., 39(3-4):173-179.

The present communication deals with the taxonomy of Myxobolus lalithae sp. nov. & M. aligarhensis Bhatt & Siddiqui, 1964 recovered from Labeo calbasu & Channa punctatus respectively.

11 ref.

29. Jayachandran, K.V. & N.I. Joseph (1989)

Dept. of Aquatic Biology & Fisheries,
University of Kerala, Beach
P.O. Trivandrum-695007, India.
Palaemonid prawn resources on the south-
west coast of India.
J. Aqua. Trap., 4(1): 65-76.

The peculiar distribution patterns of these prawns were observed & discussed. The occurrence of Macrobrachium acmulum & M. norvae-hollandiae / in the country is explained on the basis of the once existing Gondwana continent concept. Therefore, these species showing discontinuous distribution must have been fully evolved by the upper Eocene Epoch & are to be treated as living fossils.

/ this part of

17 ref.

30. Jha, B.S. & S. Pandey (1989)

Ectotoxicology Laboratory,
University Dept. of Zoology,
L.N. Mithila University,
Darbhanga-846001, India.
Histopathological lesions induced by lead
nitrate in the stomach of the air-breathing
teleost Channa punctatus.
Environ. & Ecol., 7(3): 721-723.

Channa punctatus, when exposed to a sub-lethal concentration (141.77 mg/liter) of lead nitrate for a period of 45 days, showed histopathological lesions in stomach, namely, crumpled & shrunken shape, damaged epithelium of the mucosal fold, its shortened length, disintegration of the muscle layers, vacuolizations & edema in the epithelial & mucous goblet cell.

11 ref.

31. Jhingran, V.G., S.H. Ahmad & A.K. Singh (1989)

1. College of Fisheries,
Rajendra Agricultural University,
Delhi-843121, India.

2. Freshwater Biology Laboratory,
B.D.E. College,
Patna-800001, India.

Application of Shannon-wieever index as
a measure of pollution of river Ganga at
Patna, Bihar, India.

Curr. Sci., 58(13): 717-720.

Monthly variations of the Shanon-Wieever species diversity index (\bar{H}) for benthic macroinvertebrates were recorded at three stations on river Ganga at Patna from July, 1985 to June, 1986. The Shanon-Wieever index is found to vary from 0.434 is indicate severe environmental stress. The range of station II, 0.689 to 2.434, is indicative of an intermediate state of environmental pollution, & the range at station I, 0.798 to 2.608, reflects a comparatively low load of pollutants.

24 ref.

32. Joseph, A.C., P.K. Surendran & P.A. Perigreen (1989)

Central Institute of Fisheries
Technology,
Cochin-682 029, India.

Delayed freemng on the quality and
shelf-life of Kalawa (Epinephelus spp.).

Fish. Technol., 26(2): 107-110.

Kalawa (Epinephelus spp.) caught on board FORV Sagar Sampada was frozen in the absolutely fresh condition as well as after keeping for 5 & 0 hr at ambient temperature. Fresh frozen & 5 h delayed frozen fish samples had a shelf-life of more than 62 weeks, whereas the 10 h delayed frozen fish had a shelf-life of about 48 weeks only.

15 ref.

33. ¹Joshi, C.B., ²K.L. Sehgal & ³K. C. Malkani (1989)

1. National Research Centre on Coldwater Fisheries, Haldwani, Nainital-263139.

2. U.P. State Fisheries Dept., Pithoragarh. Experimental trials on feeding of Tor putitora with formulated diets at Bhimtal in Kumaon Himalayas.

Indian. J. Anim. Sci., 59(1): 206-209.

Among the test diets tried, the formulated feed AF II with 35% crude protein level showed comparatively better results with higher efficiency than the other two test diets. The egg-yolk diet gave growth efficiency higher than even formulated feed AF II as it was very high in energy & lipid contents. The feed conversion rate & the survival of the fry achieved were higher with the formulated test feed AF II.

12 ref.

34. Kagwade, P.V. (1988)

Bombay Research Centre of Central Marine Fisheries Research Institute, Bombay-400001, India.

Reproduction in the spiny lobster Panulirus polyphagus (Herbst).

J. Mar. Biol. Ass. India, 30(1&2):37-46.

Breeding in Panulirus polyphagus (Herbst) as evidenced by the high percentage of impregnated and ovigerous females was throughout the year. Size at which 50% of the females matured, was 175 mm. Majority of the females matured at 205 mm & the males at 265 mm. Impregnated females showed 3-5 peaks.

15 ref.

35. ¹Kaliyamurthy M., ²S.K. Singh & ³S.B. Singh (1988)

1. CIFR Centre, Pollachi-642001, India.

2. P.G. Dept. of Zoology, Magadh University, Bodh Gaya, India

Bomolochus indicus sp. nov. (Copepoda) parasitic on the fishes of the Pulicat lake. Proc. Nat. Acad. Sci. India 58(B)III:399-402.

New species of piscicolous copepod, Bomolochus indicus, from Gerres Indius & G. filamentosus of the Pulicat lake is described. The species is close to B. selaroides & B. (p.) gerres.

4 ref.

36. ¹Khan, A.A., ²N.A. George, ³T. Joseph Mathai & ²A.K., Kesavan Nair (1989)

1. Burla Research Centre of CIFT, Burla-768017.

2. Central Institute of Fisheries Technology, Cochin- 682029

3. Research Centre of Central Institute of Fisheries Technology, Panaji-403001, Goa.

On the optimum mesh size for the capture of Barbus tor (Hamilton).

Fish. Technol., 26(2): 92-94.

Results of mesh selectivity experiments on B. tor are presented in this paper. The optimum girth/mesh perimeter ratio was found to be 1-31. A linear regression of $G+0.445L=12.8$ was fitted for conversion of length of girth.

9 ref.

37. Kumari, Parminder, S. Khera & N.K. Gupta (1988)

Dept. of Zoology, Punjab University,
Chandigarh, India.

On two new species of ectoparasites of freshwater fishes belonging to the genus Neoergasilus in (ergasilidae: caepoda).
Res. Bull. Punjab Univ., 39(3-4): 161-168.

/of Two species Neoergasilus ferozepurensis sp. nov. & N. notopteri sp. nov. are described. The genus Neoergasilus is being reported for the first time from India. A key to the species of the genus Neoergasilus is provided.

1 ref.

38. Kunjipalu, K.K., N. Subramania Pillai & M.R. Boopendranath (1989)

Central Institute of Fisheries Technology,
Cochin-682029, India.

Performance of 25 m large mesh demersal trawl off Veraval, north west coast of India. Fish. Technol., 26(2): 95-99.

In this study used one boat with high opening trawl of Bay of Bengal Programme (BOBP) with 360 meshes of 160 mm mesh size & 25.6 m head rope length. 8.2 percent increased catch was obtained by 25 m large mesh demersal trawl. The gear is comparatively cheaper, lighter in construction & offered better horizontal spread with significantly lower towing resistance commercial suitability of the gear for efficient harvesting of demersal fish resources of the region is discussed.

10 ref.

39. Lakshmanan, M.A.V., P.L.N. Rao., C. Selvaraj & S.P. Rai (1985)

Central Inland Fisheries Research Sub-station, Cuttack-743001, Orissa.

Observation on production of carps through short-term rearing.

J. Inland Fish. Soc. India, 17(1&2):48-52.

The management practices include liming fertilizing the pond with a mixed fertilizer gromor & cow-dung feeding the fish with groundnut oilcake & rice polish. The physico-chemical qualities of the soil & water were studied.

10 ref.

40. Maheshwari, U.K., B.C. Das, S. Paul S.K. Chouhan and A.K. Yadav (1988)

Fresh Water Fish Farm, CIFE (ICAR), Powarkheda, Dist. Hoshangabad (M.P.), India.

Bioassay studies of some commercial organic pesticides to an exotic carp fry, Hypophthalmichthys molitrix (CXV).

J. Environ. Biol., 9(4): 377-380.

Methyl parathion was found most toxic & the BHC least, as judged by their LC₅₀ values. The safe concentration of BHC, Endosulfan & Methylparathion were found to be 0.00224 mg/l, 0.0000569 mg/l & 0.0000502 mg/l respectively.

7 ref.

41. Mathew, P.M. (1985)

Central Inland Capture Fisheries
Research Institute,
Barrackpore-743101, West Bengal, India.
Seasonal trends in the fluctuations of
plankton & physico-chemical factors in a
tropical lake (Govindgarh lake, M.P.) &
their interrelationships.
J. Inland Fish. Soc. India, 17(1&2):11-24.

The plankton showed generally two peaks, a primary peak in winter & a secondary peak in summer. Phytoplankton constituted 88% of the total plankton by number. The seasonal fluctuations of the planktonic groups & the probable effects of different ecological factors on the production of plankton have also been discussed in this paper.

39 ref.

42. Mitra, P.M. B.N. Saigal & H.C. Karmakar (1988)

Central Inland Capture Fisheries
Research Institute,
Barrackpore-743101, West Bengal, India.
Indiscriminate exploitation of young
Hilsa ilisha (Hamilton) from the upper
freshwater stretches of the Hooghly estuary.
Proc. Nat. Acad. Sci. India, 58(B)III:349-358.

An estimated yield amounting to 115.5 t during 1984-85 numerically works out to 26.2 million of young fish. The effects of exploitation on recruitment to Hilsa fishery have been discussed.

8 ref.

43. Mitra, P.M. & H.C. Karmakar (1985)

Central Inland Capture Fisheries
Research Institute
Barrackpore-743101, West Bengal
India.

A multiple regression model for estimating body weight of mature Hilsa ilisha (Ham).
J. Inland Fish. Soc. India. 17(1&2):62-65.

The total length, the body height, & the body thickness have been observed to be jointly the best estimators of the body weight in case of mature female while the total length & the body thickness as the best estimators of the body weight in case of mature males.

4 ref.

44. Mitra, S. and R.K. Sur (1989)

Dept. of Zoology, Calcutta University,
35, Ballygunge Circular Road,
Calcutta-700019, India.

Changes in the lipid and carbohydrate contents of the digestive gland during aestivation of two gastropods Achatina fulica and Pila globosa. Envirn. Ecol., 7(3):658-662

The use of metabolic reserves during aestivation was studied in two gastropod molluscs Achatina fulica & Pila globosa. Total lipid decreased to 6.66% in Achatina fulica & 5.29% in Pila globosa during 90 days aestivation. The total carbohydrate decreased by 6.3% in Pila globosa but in Achatina fulica no appreciable changes was recorded. Fraction specific changes on TLC plates were found in the total lipid of both the snails. Certain fractions of

the neutral lipid, glycolipid & phospholipid increased or decreased during aestivation period.

16 ref.

45. Mukherjee, A.B. & N.C. Basu (1988)

Central Inland Capture Fisheries
Research Institute,
Barrackpore-743101, West Bengal, India.
A case study on strengthening of tidal
embankment of brackishwater aquafarm by
sedimentary processes in silt cage.
J. Mar. Biol. Ass. India, 30(1&2):23-27.

Brackishwater farms are mostly constructed on slushy & permeable bases commonly encountered in deltaic regions where soils have usually poor bearing capacity. Permeable silt cages as erosion control measure have been tried to counteract the erosive forces of tidal flows by sedimentation of silt loads carried by tidal waters.

4 ref.

46. Murugesan, A.G. S. . P. Muthu & M.A. Haniffa (1989)

1. Dept. of Biology, Sri Paramakalyani College, Alwarkurichi-627412, India
 2. Dept. of Zoology, St. Xavier's College Palayamkottai-627002, India.
- Cytopathological changes in erythrocytes of the cat-fish Heteropneustes fossilis (Bloch) exposed to textile mill effluent.
Curr. Sci. 58(5): 268-270.

Cytoplasm of the leucocytes also shows vacuolation as a result of treatment with textile mill effluent. It may be mentioned that vacuolation is the earliest sign of damage to cells & precedes autolysis.

5 ref.

47. Nair, T.S. Unnikrishnan, K. George, Joseph,
V. Muraleedharan & N. Kalaimani (1989)

Research Centre of Central Institute
of Fisheries Technology,
Calicut-673005, India.
Preparation of mussel marinade.
Fish. Technol., 26(2):119-121.

A simple & cheap process for the pre-
servation of mussel meat by marinading is described.
The method involves blanching the mussel meat shucked
from depurated live mussels through different chemical
solution. The product stored in closed glass jars
has a storage life of approximately 16 weeks for
room temperature (23-30°C).

10 ref.

48. Narasimham, K.A. (1988)

Tuticorin Research Centre of
Central Marine Fisheries Research
Institute,
90, North Beach Road,
Tuticorin
Biology of the blood clam Anadara
granosa (Linnaeus) in Kakinada Bay.
J. Mar. Biol. Ass. India,
30(1&2): 137-150.

Anadara granosa spawns throughout the
year and the major spawning months vary between
years. There can be 2-4 reproductive cycles in a
year. Various morphometric & length-weight relation-
ship are studied.

33 ref.

49. Narasimham, K.A. (1988)

Tuticorin Research Centre of
Central Marine Fisheries Research
Institute, 92, North Beach Road,
Tuticorin India.

Taxonomy of the blood clams Anadara
(Tegillarea) granosa (Linnaeus, 1758)
and A. (T.) rhombea (Born, 1780).
J. Mar. Biol. Ass. India,
30(1&2): 200-205.

Descriptions of A. (T.) granosa and A. (T.) rhombea are given. The differences between these two species are brought out.

28 ref.

50. Pal, A.K. & S.K. Konar (1989)

1. Dept. of Zoology, Santipur College,
Santipur-741404, India.
2. Fisheries Laboratory, Dept. of
Zoology, Kalyani-741235, India.

Effects of chronic exposure of phosphamidon
on aquatic ecosystem.

Environ. & Ecol., 7(3): 708-712.

Long-term (90 days) exposure of the
organophosphorus pesticide phosphamidon reduced
significantly the free CO_2 of water & the total
alkalinity. Significant reduction of zooplankton
was found at all concentrations of phosphamidon
exposure.

33 ref.

51. Pal, R.N. D.K. De & S.A. Ghosh (1985)

Central Inland Capture Fisheries
Research Institute,
Barrackpore-743101, India

Preliminary observations on health problem
of Puntius javanicus in a sewage-fed pond.
J. Inland Fish. Soc. India, 17(1&2): 74-77.

The type of the tumour observed in P. javanius reared in the sewage-fed pond in Barasat, West Bengal is very much species specific as no other Indian or exotic carp exhibited any such symptom when cultured in sewage-fed ponds.

12 ref.

52. Pandey, K.C. & Usha Pandey (1987)

Dept. of Zoology, Institute of Advanced Studies, Meerut University,
Meerut-250005, India

Ultrastructure of liver of normal and starved fish Heteropneustes fossilis (Bloch)
Ad. Bios. 6(2): 187-192.

Hepatocytes of H. fossilis are more or less same in ultrastructure as in other vertebrates. The normal fish has stored lipids & glycogen in hepatocytes. In starved fish, the hepatocytes contained considerably smaller amount of glycogen. Further, other organelles such as golgibody, endoplasmic reticulum, ribosome mitochondria, bile canaliculi & dense bodies are also scattered in the cytoplasm of the hepatocytes.

19 ref.

53. Peter, M.C. Subash & Oommen V. Oommen (1989)

Dept. of Zoology, University of Kerala,
Trivandrum-695581, India.

Effect of thyroid hormones on the activities of hepatic enzymes in thiouracil-treated teleost, Anabas testudineus (Bloch)
Curr. Sci., 58(1): 37-38.

Exogenous administration of thyroid hormones in Anabas testudineus inhibit the anabolic but has no effect on the catabolic enzymes regardless of thyroid disfunction by antithyroid drug administration.

9 ref.

54. Prasad, K.S. & A.K. Mishra (1988)

National Remote Sensing Agency,
Balanagar,
Hyderabad-500037, India.
Secchi disc-chlorophyll relationship.
J. Mar. Biol. Ass. India, 30(1&2):157-159.

Secchi disc-chlorophyll relationships are studied and an equation is presented after least square analysis to predict chlorophyll concentrations for varying secchi disc depths. Its validity in sediment dominated waters is also discussed along with some limitations.

3 ref.

55. Premalatha, P. (1988)

Integrated Fisheries Project,
Cochin-682016, India.
Studies on the distribution and abundance of carangid fish larvae along the southwest coast of India.
J. Mar. Biol. Ass. India, 30(1&2):75-82.

56. Premalatha, P. (1988)

Integrated Fisheries Project,
Cochin- 682016.

Studies on the carangid fish larvae on the southwest coast of India-I. Megalaspis cordyla (Linnaeus, 1758).
J. Mar. Biol. Ass. India, 30(1&2): 83-92.

The larvae of Megalaspis cordyla contributed 20% of the total carangid fish larvae. Larvae were identified on the basis of meristic and morphometric characters of the adults. Larval characters of selected stages were described.

22 ref.

57. Premalatha, P. (1986)

Integrated Fisheries Project,
Cochin-682016.

Studies on the carangid fish larvae of the south west coast of India II Decapterus dayi (Wakiya, 1924).
Bull. Dept. Mar. Sci. Univ. Cochin,
14 : 113-122

The paper deals with the developmental stages of Decapterus dayi & its seasonal abundance & area of distribution. Distribution study showed that larval abundance was more during May to November with peaks in July & September in the Cape Comorin region.

5 ref.

58. Premalatha, P. (1986)

Integrated Fisheries Project,
Cochin-682016.

Studies on the carangid larvae of the south west coast of India III - Alepes kalla (Cuvier and valenciennes, 1833).

Bull. Dept. Mar. Sci. Univ. Cochin,
14: 123-130.

The paper deals with the developmental stages of Alepes kalla. Distribution & abundance of larvae in relation to environmental parameters are discussed. Larval occurrence was found to be more towards Cochin area than the other regions during July to October, indicating a prolonged breeding season.

9 ref.

59. Rao, G. Sudhakara, (1988)

Central Marine Fisheries Research Institute,
Cochin-682031.

Studies on the feeding biology of Metapenaeus monoceros (fabricius) along the Kakinada coast.

J. Mar. Biol. Ass. India, 30(1&2): 171-181.

Percentages of food are discussed. No

seasonal variation either in the food items consumed.

In the inshore waters feeding intensity / found to be / is
/ in better / adults and at night than in juveniles
during the day.

23 ref.

60. Rao, G. Sudhakara, K. A. Narasimkam & V. Sriramchandra Murty (1988)

1. Visakhapatnam Research Centre of CMFRI,
Visakhapatnam
2. Tuticorin Research Centre of CMFRI,
Tuticorin
3. Kakinada Research Centre of CMFRI,
Kakinada.

Prawn culture in salt pans in east Godavari district, Andhara Pradesh.
J. Mar. Biol. Ass. India, 30(1&2):151-156.

The first experiment was conducted in the salt pans of Neellarevu during June—December 1974. The production rate of prawns for the 6 months period was 164 kg/ha & 189 kg/ha experiment conducted at Lakshmipathipuram, 9470 juveniles of P. monodon, of length 94.2 mm, were stocked in a salt pan reservoir of 0.26 ha provided with a box type sluice gate in December, 1976. Growth rate was found to be low in higher salinity (38.72-45.39 ppt).

/respectively in two ponds. Second 4 ref.

61. Rao, G. Syda (1988)

Research Centre of Central Marine Fisheries
Research Institute,
Kakinada-533002.

Biology of Stolephorus devisi (whitley) from
Mangalore area, Dakshina Kannada.

J. Mar. Biol. Ass. India, 30(1&2): 28-37.

The growth parameters of Stolephorus devisi are estimated by Gulland & Holf Plof as L_{∞} 113 mm, K 0.0056/day & t_0 at 36 days. The species attains first maturity at a length of 62 mm. The major spawning is from October to February. Fecundity estimates are correlated to the length of the fish. A steep fall in relative condition (kn) at 62 mm coincides with the length at first maturity. The low kn values beyond the length at first maturity appear to be due to protracted spawning season of this species.

11 ref.

62. Rao, G. Syda (1988)

Kakinada Research Centre of CMFRI,
Kakinada-533002, India.

Some aspects of biological of Stolephorus bataviensis hardenberg, from Mangalore area
dakshina Kannaḍa.

J. Mar. Biol. Ass. India, 30(1&2): 107-113.

The growth parameters of S. bataviensis are estimated by Gulland & Holt method. The parameters are $L_{\infty} = 116$ mm, $K = 0.0054/\text{day}$ & $t_0 = -20$ days. The species reaches a length of 77 mm at the end of one year. The length-weight regression equations of males & females differ significantly. The length at first maturity is estimated at 77 mm.

/six months and 101 mm at

5 ref.

63. Rao, Maitheli, R. & S.N. Dwivedi (1989)

1. Dept. of Biological Sciences,
Rammarain Reva College, Matunga,
Bombay-400019, India

2. Dept. of Ocean Development, Govt. of
India New Delhi-110001, India.

Food and feeding habits of the fish
Cynoglossus macrolepidotus off Bombay coast.
Environ. & Ecol., 7(3): 666-668.

Cynoglossus macrolepidotus (Bleeker) off
Bombay coast is a bottom feeder, feeding on crusta-
ceans, polychaetes & to a smaller extent on molluscs,
ascidians & foraminiferans. It mainly feeds on crus-
taceans.

11 ref.

64. Ravi, G. & V.R. Selvarajan (1988)

Dept. of Zoology, University of Madras,
Guindy Campus, Madras-600025, India.
Electroencephalographic investigation of
phosalone poisoned Cyprinus carpio
communis (Linn).
J. Environ. Biol., 9(4): 371-375.

The fingerlings of Cyprinus carpio were exposed to lethal concentration of phosalone. Neural tissue respiration & total work done to EEG waves were found to be significantly reduced. EEG record does not show any convulsive attack. It is suggested that acute hypoxia might have suppressed the convulsive attack in the brain of fish.

10 ref.

65. Reddy, M. Srinivasulu, G.R. Veera Babu & K.V. Ramana Rao (1989)

Division of Toxicology, Dept. of Marine
Zoology, S.V. University, P.G. Centre,
Kavali-524202.

Changes of lipid components in midgut gland and muscle of penaeid prawns, Metapenaeus monoceros and Penaeus indicus exposed to phosphamidon.
Mahasagar, 22(1): 43-46.

Total lipids & glycerol significantly decreased while lipase activity in phosphamidon exposed tissues increased. Increase in fatty acids & total cholesterol suggest elevated cellular lipolysis indicating lipid breakdown & utilization to meet higher energy demands. Variations where tissue specific more pronounced is midgut gland especially in P. indicus.

11 ref.

66. Reddy, M. Sreenivasulu, G.R. Veera Babu & K.V. Ramana Rao (1989)

Division of Toxicology Dept. of Marine Zoology, S.V. University, P.G. Centre, Kavali-524202.

Phosphamidon and methyl parathion induced alterations in the tissue proteins, pyruvate and excretory products of the marine prawn, Metapenaeus monoceros. Mahasagar, 22(1): 47-51.

The changes in certain biochemical parameters like tissue proteins, pyruvate, free amino acids & certain excretory products were noticed in the phosphamidon exposed & methylparathion exposed prawn, Metapenaeus monoceros. The results of this study suggest that phosphamidon & methylparathion exert profound effects on tissue proteins & elimination of excretory product, which result in the triggering of compensatory metabolic pathways such as detoxification & transformation of ammonia for survival.

17 ref.

67. Reddy, M. Srinivasulu & K.V. Ramana Rao (1989)

1. Sri Venkateswara University, Post Graduate Centre, Kavali, Andhra Pradesh-524202, India.

2. Division of Toxicology, Dept. of Marine Zoology. S.V. University P.G. Centre, Kavali-524202, India.

Inhibitory potentiality of phosphamidon and lindane on the limb regeneration of marine prawn, Penaeus monodon. Indian J. Anim. Sci., 59(1): 199-202.

These pesticides in lower concentration inhibited regeneration & delayed the initiation of limb development, but in higher concentration delayed the processes. The results suggested that the crustacean limb regeneration can be taken as a parameter for assessing toxic effects of environmental pollutants like insecticides & pesticides.

7 ref.

68. Reddy, M. Vikram & B. Malla Rao (1989)

Environmental Biology Laboratory,
Dept. of Zoology, Kakatiya University,
Warangal-506009, India.

Community structure of benthic macro-
invertebrates of fish ponds and sewage
irrigated tanks in an urban ecosystem.
Environ. & Ecol. 7(3): 713-716.

Monitoring of benthic macroinvertebrates
in sewage added irrigation tanks & fish-ponds revealed
the presence of meager number of Tubifex sp. larvae
of Dicrotendipes sp. the former being dominant, consti-
tuting 86.0% & the latter 12.0% of the total inverte-
brates in fish ponds compared to those of the sewage
fed irrigation tanks inhabited by Tubifex sp larvae
of Dicrotendipes sp; Belamga dissimilis & Indoplanorbis
exutus,. The pH, electrical conductivity, alkalinity
total hardness & carbonate hardness, dissolved oxygen
& chlorides were comparatively higher in the fish ponds.

9 ref.

69. Sajini, C.B., V.K. Rajbanshi & A.K. Gupta (1989)

Dept. of Limnology & Fisheries,
Sukhadia University, Udaipur-313001, India.
Growth performance of Cirrhinus mrigala
(Ham) fingerlings on manganese supplicated
and deficient diets.
Geobios, 16(2&3): 53-56.

The better growth rate of fish due to
Mn supplication has been discussed in relation to the
ingredients of the diets & water quality. The valuable
quick and non-technical nature of the system is
discussed.

11 ref.

70. Sakthivel, M. (1989)

Dept. of Zoology, Kamaraj College,
Tuticorin-628003, India.

Toxic effects of tannery and textile mill
effluents on the fishes Cyprinus carpio
and Oreochromis mossambicus.

Environ & Ecol., 7(3): 685-689.

Tannery & textile mill effluents were characterized. Toxicity of these effluents on Cyprinus carpio & Oreochromis mossambicus was studied by static bioassay test. Ninety-six-hour LC₅₀ values of tannery effluent were 5.3 & 3.6% for C. carpio & O. mossambicus respectively. But these values of textile mill effluent were 10.8 & 8.4% for C. carpio & O. mossambicus. The high concentration of carbonate alkalinity in tannery effluent & huge organic load in both the effluents were responsible for fish mortality.

16 ref.

71. Sakthivel, M. & K. Sampath (1989)

1. Zoology Dept. Kamraj College,
Tuticorin-628003.

2. Zoology Dept. V.O.C. College,
Tuticorin-628008.

Haematological responses of Cyprinus carpio in
relation to starvation.

Geobios., 16(2&3): 61-65.

Haematological responses in relation to starvation were studied in Cyprinus carpio. Total RBC, WBC, Hb content, haematocrit, MCH MCHC, & coagulation time were gradually increased in test fishes upto 40 days of starvation, but decreased significantly between 45 & 60 days. The relative percentage of lymphocyte, neutrophils, monocyte, plasmocyte & macrophages increased. Resuming normal feeding after 60 days of starvation, it could restore normaly within 15 days.

9 ref.

72. Sarojini, R. & J. Rajani (1987)

Dept. of Zoology, Marathwada University
Aurangabad-431004, M.S.India.
Reproductive cycle of female freshwater
prawn Caridina rajadhari.
Ad. Bios. 6(2): 115-123.

The biometrical analysis suggests that the
Caridina rajadhari is a continuous breeder with two
peaks of reproductive activity, the major peak
extends from October to November & a minor peak from
February to March.

23 ref.

73. Sehgal, K, L., C.K. Sar & Sukhbeer Kaur (1989)

MAB programme on impact of construction and
competetion of Beas-Sutlej Link Project on
limnology and fisheries of R. Beas, Bilaspur,
Himachal Pradesh.

A case of sexual dimorphism in Xenentodon
cancila (Hamilton) from Pong reservoir, H.P.
Curr. Sci. 5(4): 142-143.

3 ref.

74. Selvanayagam, M., T. Peter Raj and A. Jebaneson (1988)

Dept. of Zoology, Iyola College,
Madras-600034, India.

Interaction of hydrological parameters with
the distribution of aquatic hemipterans in
River Cooum, Madras.

J. Environ. Biol., 9(4): 361-370.

The occurence & diversity of the aquatic
hemipterans in the seasonal lotic system, river Cooum
is correlated with the physico-chemical characteristics
of the river. Influence of pollution on the distribution
of the aquatic Hemipterance within the system is high &
the insects were almost absent in the polluted down-
stream whereas they were abundant in the non-polluted
upstream.

19 ref.

75. Sen, P.R. R.D. Chakraborty (1985)

Central Inland Capture Fisheries
Research Institute,
Barrackpore-743101, West Bengal, India.
Large scale rearing of Indian major carps
& exotic grass carp fry to fingerlings in
freshwater ponds.
J. Inland Fish. Soc. India., 17(1&2):7-10.

5 ref.

76. Sethi, N. & R.K. Singh (1987)

Division of Toxicology, Central Drug
Research Institute,
Lucknow, India.
Serum organic phosphorus levels of fresh
water mud eels Amphipnous cuchia, under
intoxication of pesticide sumithion.
Ad. Bios., 6(2): 175-178.

Sumithion intoxication resulted in ele-
vation of serum inorganic phosphorous levels of mud
eel, A. cuchia to maximum of 61.78% above control was
observed after 96 hrs exposure to 625 mg/l concentra-
tion while minimum (7.72%) was seen at 3.75 mg/l
concentration after 144 hrs exposure.

4 ref.

77. Shrivastava, N.P. & V.R. Desai (1985)

Central Inland Capture Fisheries
Research Institute;
Barrackpore-743101, West Bengal, India.
Studies on periphyton in a hydel impound-
ment, Rihand (U.P.).
J. Inland Fish. Soc. India,
17(1&2): 35-38.

The periphyton which did not exist in monsoon, appeared during post monsoon, and was abundant when the reservoir was calm having no water turbulence. Oscillatoria sp. was the most important form occurring throughout the reservoir.

7 ref.

78. Singh, Malti, Sandhya Gour and Pradeep K. Singhal
(1988)

Dept. of Post Graduate Studies and Research
in Biological Sciences, R.D. University,
Jabalpur-482001, India.
Biodegradation of some tropical aquatic
macrophytes.
J. Environ. Biol., 9(4): 409-415.

Chara globularis & Hydrilla verticillata
lost 90% of its dry weight within first 10d, leaving
a very small dry mass for biological degradation. On
the contrary, the killed & unkilld leaves of Eichhornia
crassipes lost about 47% of its dry weight in 20d,
contributing a higher mass for microbial degradation
Phaeophytin a was considered as a measure of autolytic
leaching.

16 ref.

79. Singh, Santokh & Girish Maheswari (1987)

School of Entomology, St. John's College
Agra, India.
Swarming ecology of chironomidae (Diptera)
of high altitude lake Chandertal (Northwest
Himalaya).
Ad. Bios., 6(2): 179-186.

The chironomid community of Chandertal lake
consist of five hither to undescribed species belong-
ing to 3 genera viz, Himatendipes, matricnemus &
Corynon cura.

6 ref.

80. Sivakumaran, K.P. & V. Ramaiyan (1988)

Centre of Advanced Study in Marine
Biology,

Parangipettai-608502.

On the unusual landings of tunas (pisces:
Scombridae) along Parangipettai, south
east coast of India.

J. Mar. Biol. Ass. India., 30(1&2): 230p.

An unusual heavy landing of juveniles of
frigate mackerel Auxis thazard & little tuna Euthynnus
affinis during October, 1987 at Parangipettai landing
centre, is reported in the short communication.

2 ref.

81. Srinivasan, M. (1988)

Zoological Survey of India, Marine
Biological Station,
Madras-600028.

Species association in chaetognatha from
the Arabian Sea.

J. Mar. Biol. Ass. India,
30(1&2): 206-209.

The percentage of co-occurrence of
Sagitta enflata, the dominant species
in the samples collected from the continental shelf
area of the Arabian sea, with the remaining species
of the genera Sagitta and Krohnitta is studied and
discussed.

12 ref.

82. Srivastava, Sunil Kumar (1988)

Dept. of Zoology, University of Allahabad,
Allahabad-211002, India.

Factors affecting plankton population in a tropical pond: a statistical approach. J. Environ. Biol., 9(4): 401-408.

The spatial data collected have been filtered to remove error & random variance & subjected to standard statistical techniques to establish relationships between plankton & physico chemical environment of the pond. Finally the regression equation has been made to predict scores on the dependent variable from those on the independent variable.

4 ref.

83. Subramanian, V. Thangaraj (1988)

Madras Research Centre of CMFRI,
29, Commander-in-Chief Road,
Madras-600105, India.

Bathymetric distribution of the marine prawn Metapenaeus dobsoni miers off cochin, Kerala.

J. Mar. Biol. Ass. India., 30(1&2):132-136.

Although M. dobsoni was recorded upto a maximum depth of 34 m, major part of the fishery occurred in the 6-15 m. Relationship between abundance & depth was apparent, as revealed by the overall catch-rate of 2.20, 0.92 & 0.13 kg/hr. at < 10 m, 15 m and > 20 m, respectively. The proportion of females in population also progressively increased with depth and about 90% of the overall individuals inhabiting > 20 m depths were females, of which about 80% were spawners. Immature females and relative proportion of males in population were more at 10 m depth.

7 ref.

84. Subramanyam, V., D.M. Backyavathy & R. Ramamurthi (1989)

Pesticide and Industrial Toxicology Centre,
Dept. of Zoology, Sri Venkatesh University,
Tirupati-517502, India.

Inhibitory effects of lead on 8-aminolevulini
acid dehydratase enzyme in the fish Tilapia
mossambica.

Environ. & Ecol., 7(3): 740-742.

On exposure of the fresh water fish Tilapia
mossambica to sublethal concentration (2.8 ppm) of
lead acetate, the blood enzyme 8-aminolevulinic acid
dehydratase activity was inhibited. The rate of inhi-
bition was increased significantly from 1 day of expo-
sure to 30 days of exposure. The maximum decrement was
observed to be 73.9% in the fish exposed to 30 days.

16 ref.

85. Taneja, S.K., P. Arya & U. Bains (1988)

Dept. of Zoology, Punjab University,
Chandigarh, India.

Effects of $ZnSO_4$ toxicity on the skeletal
muscles of the mosquito fish, Gambusia affinis.
Res. Bull. Punjab Univ., 39(3-4):207-211.

Gambusia affinis exposed to 80 ppm of $ZnSO_4$
in water for 24 h; registered a substantial rise in
glycogen, (16.3%), cholesterol (38.9%) & reduction in
RNA (46.5%) proteins (48.6%); while enzyme activity of
fructose-1, 6-diphosphatase (24%), alanine triphos-
phatase (78.1%) & alkaline phosphatase (35%) was eleva-
ted & that of glucose-6-phosphatase (16.4%) depressed
in its skeletal muscle against control fish.

30 ref.

lipid (30.2%) phospholipid (42.8%)

Tri

86. Tripathi, S.D., S. Patnaik, S. Ayyappan, P.K. Saha
& C.S. Purushothanam (1989)

Central Institute of Freshwater Aquaculture,
Kausalyagang,
Bhubaneswar-751002, Orissa, India.
Effects of mahua oilcake treatment on the
water quality and biota of fish ponds.
J. Aqua. Trop., 4(1):29-36.

The effects of treatment with the piscicide,
mahua oilcake (Bassia latifolia), on the water quality
& fish food organisms of farm ponds are presented.
These observations along with those on water quality,
proved that Mahua treatment requires 15 days for com-
plete decomposition, stabilisation & restoration of
normalcy in pond conditions for stocking fish.

11 ref.

87. Vaidya, M.V. & M.V. Nanati (1989)

National Environmental Engineering
Research Institute, Nehru Marg,
Nagpur-440020, India.
Bhindi seed powder as coagulant in remo-
val of turbidity from water.
Indian J. Environ. Hlth., 31(1):43-48.

Bhindi seed powder when treated with ammonia,
gave improved performance over untreated one for clarity
in low as well as high turbidity raw water. Bhindi
seed powder solution deteriorates with aging. Ammonia
treated Bhindi seed powder proved to be very good pri-
mary coagulant in water clarification & can reduce the
cost of treatment considerably at higher turbidities
as compared to alum.

7 ref.

88. Venkatesan, V., K.R. Ramesh Babu, I. V.G. K. Sreshty, J. Purushotham Sai, K. Joshua & V. Subba Rao (1988)

1. The Marine Products Export Development Authority, Regional Centre (Prawn Farming) Machilipatnam -521001,
2. The Marine Products Export Development Authority, Regional Centre (Prawn Farming), Pattukkothai-614601

Observations on the recruitment and seasonal abundance of post larvae of Penaeus monodon fasciatus and Penaeus indicus H. milne edwards in the brackish-water creeks of observations on the Machilipatnam, Andhra Pradesh, South India.

J. Mar. Biol. Ass. India., 30(1&2):

210-214.

There is a tremendous potential for collecting commercially important penaeid prawn post-larvae in and around Machilipatnam creeks which could supply to the just developing new brackishwater prawn farms in Andhra Pradesh and neighbouring maritime states. Gears like hand net & scoop net have proved to be best suited for collecting of prawn postlarvae & juveniles.

4 ref.

89. Venugopal, G., D. Swain & J.P. George (1988)

1. Freshwater Fish Farm, Balabhadrapuram, CIFE, East Godavari District, A.P.
2. Dept. of Fisheries, Govt. of Orissa, Cuttack.
3. Inland Fisheries Training Centre (CIFE), Barrackpore-743101, India.

Bioassay evaluation of toxicity of monocrotophos to a freshwater exotic carp, Cyprinus carpio communis (Linn) mortality and behaviour study.

J. Environ. Biol., 9(4): 395-399.

Toxicity of monocrotophos, an organophosphorus insecticide was tested on the common freshwater exotic carp Cyprinus carpio communis (Linnaeus). The results indicated that the mortality for any fixed period increased with the increase of exposure period. The LC₅₀ values decreased with increased exposure period. On exposure to monocrotophos significant behavioural changes were observed.

10 ref.

90. Yousuf, A .R. & Anil K. Pandit (1989)

Postgraduate Dept. of Zoology, The University of Kashmir,
Srinagar-190006.

Study of the ponderal index in an endemic food fish of Kashmir, Schizothoracichthys niger (Heckel) Misra.

J. Aqua. Trop., 4(1): 55-63.

The paper discusses the changes in the ponderal index, month-wise, length-wise & age-wise, in Schizothoracichthys niger (Heckel) Misra. The index exhibits seasonal variations in close association with the gonadal development & feeding intensity in the fish. Least values are recorded during cold water months in both the sexes. Male fish depict a comparatively better condition as indicated by K values, which is attributed to lesser gonadal mass in them. Ponderal index increases gradually with age up to the third year & thereafter declines in older fish. With respect to length the index exhibits a peak in the 190-225 mm size group.

16 ref.

II. AUTHOR INDEX

Every author's name appearing in the original article is listed alphabetically, including corporate bodies (Societies, organisations etc.), whether occurring as a single or multiple words. (Reference is given to serial no of the entry).

S.N. Agarwal	... 12
Ahmad Najmi	... 1
Ahmad S.H.	... 31
Anand, M.	... 26
Arja, P.	... 85
Asthana A.	... 11
Ayyappan S.	... 86
Azad, I.S.	... 2
Babu, G.R.V.	... 4
Babu, K. Surendra	... 3
Babu, P.R.A.	... 4
Babu, T. Ramesh	... 5
Backyavathy, D.M.	... 84
Bains, U.	... 35
Bais, V.S.	... 6
Banerjee, Swapna	... 24
**Banerjee, V.	... 24
Basu, N.C.	... 45
Bhargava, H.N.	... 6
Bhattacharjee, P.C.	... 8
Bhowmik, M.L.	... 9,10
Boopen dranath, M.R.	... 38
Chakraborti, N.M.	... 11
** Basavaraja, N.	... 7

Chakrabarti, P.K.	...	23
Chakraborty, R.D.	...	75
Chattopadhyay, G.N.	...	23
Chetty, C.S.	...	4
Chetty, Sandhya Rani	...	12
Chondar, S.L.	...	13
Choudhury, A.	...	25
Chouhan, S.K.	...	40
Chouhan, J.S.	...	14
Dar, B.C.	...	40
Dasgupta, M.	...	8
Das, Nirupama	...	15
Das, P.K. M.K.	...	16
Das, R.K.	...	17
De, D.K.	...	51
Desai, V.R.	...	77
Devadoss, P.	...	18
Dwivedi, S.N.	...	63
Gaikwad, Senhalata	...	19
Garg, S.K.	...	20
Garg, V.K.	...	20
George, J.P.	...	22, 89
George, K.	...	47
Georgé, N.A.	...	36
Ghosh, A.	...	22
Ghosh, Amitabha	...	21
Ghosh, Apurba	...	23
Ghosh, Kaveri	...	24
Ghosh, P.B.	...	2 5
Ghosh, S.A.	...	51
Gopalkrishna,	...	26
Gopalakrishnan, P.	...	27
Gour, Sandhya	...	78
Gupta, A.K.	...	69
Gupta, N.K.	...	14, 37
Gupta, Sushma	...	28
Hanifa, M.A.	...	46
Jayachandran, K.V.	...	29
Jebaneson, A.	...	74
Jeshua, K.	...	88
Jha, B.C.	...	30

Jhingran, V.G.	...	31
Joseph, A.C.	...	32
Joseph, N.I.	...	29
Joseph, V. Maraleedharan	...	47
Joshi, C.B.	...	33
Kagwade, P.V.	...	34
Kalaimani, N.	...	47
Kaliamurthy, M.	...	35
Karmakar, H.C.	...	42, 43
Kaur, Sukhbeer	...	73
Khan, A.A.	...	36
Khera, S.	...	14, 28, 37
Konar, S.K.	...	16, 50
Kunjipalu, K.K.	...	38
Lakshmanan, M.A.V.	...	39
Maheswari, Girish	...	79
Maheshwari, U.K.	...	40
Makani, K.C.	...	33
Mathani, T. Joseph	...	36
Mathew, P.M.	...	41
Mishra, A.K.	...	54
Mitra, P.M.	...	42, 43
Mitra, S.	...	44
Mukherjee, A.B.	...	45
Mukhopadhyay, S.V.	...	23
Murty, V. Sriramchandra	...	60
Murugesan, A.G.	...	46
Muthu, P.	...	46
Nair, A.K. Kesavan	...	36
Nair, T.S. Unnikrishnan	...	47
Nanati, M.V.	...	87
Nandeesh, M.C.	...	7
Narasimham, K.A.	...	48, 49, 60
Oommen, V. Oommen	...	53
Pal, A.K.	...	50
Pal, R.N.	...	51
Pandey, K.C.	...	52
Pandey, S.	...	30
Pandey, Usha	...	52

Pandit, Anil K.	...	90
Parmindér, Kumari	...	37
Patnaik, S.	...	86
Paul, S.	...	40
Perigreen, P.A.	...	32
Peter, M.C. Subash	...	53
Pillai, N. Subramania	...	38
Prasad, K.S.	...	54
Premalatha, P.	...	55,56,57,58
Purushothanan, C.S.	...	86
Radha, C. Das	...	15
Rai, S.P.	...	39
Rajani, J.	...	72
Rajbanshi, V.K.	...	69
Raj, T. Peter	...	74
** Raju, V. Krishna	...	27
Ramaiyan, V.	...	80
Ramamurthi, R.	...	84
Ramésh Babu, K.R.	...	88
Rao, B. Malla	...	68
Rao, G. Sudhakara	...	59,60
Rao, G. Syda	...	61,62
Rao, K.V. Ramana	...	5, 65,66,67
Rao, Maitheli	...	63
Rao, P.L.N.	...	39
Rao, V. Subba	...	88
Ravi, G.	...	64
Ray, P.K.	...	26
Reddy, G.R.	...	4
Reddy, M. Sreenivasulu	...	65,66,67
Reddy, M. Vikram	...	68
Saha, P.K.	...	86
Saigal, B.N.	...	17,42
Sai, J. Purushatham	...	88
Sajini, C.B.	...	69
Sakthivel, M.	...	70,71
Sampath, K.	...	71
**Ram, M.D.	...	26

Sar, C.K.	...	73
Sarojini, R.	...	72
Sehgal, K.	...	33, 73
Selvanayagam, M.	...	74
Selvarajan, V.R.	...	64
Selvaraj, C.	...	39
Sen, P.R.	...	75
Sethi, N.	...	76
Singhal, Pradeep K.	...	78
Singh, A.K.	...	31
Singh, Malti	...	78
Singh, R.K.	...	76
Singh, Santekh	...	79
Singh, S.B.	...	35
Singh, S. K.	...	35
Sivakumaram, K.P.	...	80
Sreshty, I.V.G.K.	...	88
Srikanth, G.K.	...	7
Srinivasan, M.	...	81
Srivastava, N.P.	...	77
Srivastava, Sunil Kumar	...	82
Subramanyam, V.	...	84
Subramanian, V. Thangaraj	...	83
Sugunan, V.V.	...	17
Surendra, K.	...	5
Surendranath, P.	...	5
Surendran, P.K.	...	32
Sur, R.K.	...	44
Swain, D.	...	89
Swarup, Krishna	...	1
Taneja, S.K.	...	85
Thaker, Surendra R.	...	27

Ri

Tripathi, S.D.	...	10,86
Tyagi, S.K.	...	20
Udeepa, K.S.	...	2
Vaidya, M.V.	...	87
Varghese, T.J.	...	7
Veera Babu, G.R.	...	65,66
Venkatesan, V.	...	88
Venugopal, G.	...	89
Yusuf, A.R.	...	90

S-1
III Subject index

(Subject headings with their sub-headings are listed alphabetically. Reference is given to the serial number of the entry).

AQUACULTURE SYSTEM PREPARATION & MANAGEMENT	...	45, 86, 87
AQUATIC PLANTS	...	78
BENTHOS	...	68
BIOCHEMISTRY	...	24, 44, 52, 65, 85
BIOLOGY OF AQUATIC ANIMALS		
a) Food and feeding habit	...	21, 59, 63
b) Breeding and spawning	...	6, 8, 18, 34, 48, 61, 62, 72, 90
c) Embryology & early development	...	12, 18, 57, 58
d) Age and Growth	...	2, 62, 69
BREEDING OF AQUATIC ANIMALS		
Induced breeding	...	15
CULTURE OF AQUATIC ANIMALS		
a) Freshwater Aquaculture	...	17, 23, 39, 75
b) Brackishwater Aquaculture	...	60
ECOLOGY		
a) Reservoirs	...	41
b) Ponds	... 11	68
c) Rivers	...	74

FISHERIES

a) Sea (Crustacean)	...	29
,, (Fishes)	...	55,56,57, 58,80
b) Brackishwater (Crustaceans)...		88

FISHERIES MANAGEMENT	...	42
----------------------	-----	----

FISHERIES STATISTICS	...	43
----------------------	-----	----

FISHING CRAFTS, GEARS & AIDS	...	36,38
------------------------------	-----	-------

FISH PATHOLOGY	...	14,28,30, 35,37,51,73
----------------	-----	--------------------------

HYDROLOGY	...	22,74
-----------	-----	-------

INSTRUMENTATION	...	54
-----------------	-----	----

MICROBIOLOGY	...	17
--------------	-----	----

NUTRITION	...	7,12,33
-----------	-----	---------

PERIOPHYTON	...	77
-------------	-----	----

PHYSIOLOGY

a) Fishes	...	14,19,20,21, 26,46,52,53, 64,71,76,84, 89
b) Crustacean	...	66,67

PLANKTON

a) Zooplankton	...	9,10,11,22,41, 74,79,81,82
b) Phytoplankton	...	9,10,11,22,41, 82

POST-HARVEST TECHNOLOGY	...	32,47
SOIL CHEMISTRY	...	25
SYSTEMATICS		
a) Fishes	...	13
b) Crustacean	...	3
c) Molluscs	...	49
WATER POLLUTION	...	4,5,16,19,20,22, 26,30,31,40,46, 50,53,64,65,66, 67,69,70,76,84, 85,89

IV. TAXONOMIC INDEX

(Based on the taxonomic terms of the Fishes, frogs, prawns and crabs occurring on the title and also in body of the paper. The names of other group appear as per their taxonomic status in Animal Kingdom. Names of the authorities have been omitted from taxonomic terms).

<u>Alepes kalla</u>	...	58
<u>Amphipnous cuchia</u>	...	76
<u>Anabas testudineus</u>	...	53
<u>Barbus tor</u>	...	36
<u>Carcharhinus limbatus</u>	...	18
<u>Carcharhinus sorrah</u>	...	18
<u>Cardina rajadhari</u>	...	72
<u>Catla catla</u>	...	13,75
<u>Cirrhinus mrigala</u>	...	69,75
<u>Channa punctatus</u>	...	20,26,28,30
<u>Cynoglossus macrolepidotus</u>	...	63
<u>Cyprinus carpio</u>	...	7,12,64,70,71,89
<u>Decapterus dayi</u>	...	57
<u>Epinephelus spp.</u>	...	32
<u>Eetroplus maculatus</u>	...	19
<u>Euthynnus affinis</u>	...	80
<u>Gambusia affinis</u>	...	85
<u>Hetropneustes fossilis</u>	...	24,31,46,52
<u>Hypophthalmichthys molitrix</u>	...	40
<u>Labeo bata</u>	...	15
<u>Labeo calbasu</u>	...	28
<u>Labeo rohita</u>	...	13,75
<u>Macrobrachium aemulum</u>	...	29
<u>Macrobrachium dayanum</u>	8
<u>Macrobrachium norvae-hollandiae</u>	...	29
<u>Megalaspis cordyla</u>	...	56
<u>Metapenaeus brevicornis</u>	...	3
<u>Metapenaeus dobsoni</u>	...	3,83
<u>Metapenaeus monoceros</u>	...	5,65,66

J. Aqua. Trop.

4 (1), 1989

... 7,15,29,86,90

J. Environ. Biol.

9 (4), 1988

... 40,64,74,78,82,
89J. Inland Fish. Soc. India.

17 (1-2), 1985

... 9,10,13,17,21,23,
39,41,43,51,75,77J. Mar. Biol. Ass. India

30(1-2),

... 18,34,45,48,49,54,
55,56,59,60,61,62,
80,81,83,88Mahasagar

22 (1), 1989

... 25,65,66

Proc. Nat. Acad. Sci. India

58B (3), 1988

... 1,35,42

Res. Bull. Punjab Univ.,

39(3-4), 1988

... 14,28,37,84
